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ABSTRACT

In this discussion of childhood obesity, the medical and psychological problems associated with the condition are noted. Childhood obesity most likely results from an interaction of nutritional, psychological, familial, and physiological factors. Three factors--the family, low-energy expenditure, and heredity--are briefly examined. Early intervention is recommended with a focus on physical activity, diet management, and behavior modification. Parent education is also recommended as a means for preventing obesity in children. References are listed. (JD)

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Childhood Obesity

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The Prevalence of Obesity

Between 5-25 percent of children and teenagers in the United States are obese (Dietz, 1983). As with adults, the prevalence of obesity in the young varies by ethnic group. It is estimated that 5-7 percent of White and Black children are obese, while 12 percent of Hispanic boys and 19 percent of Hispanic girls are obese (Office of Maternal and Child Health, 1989).

Some data indicate that obesity among children is on the increase. The second National Children andYouth Fitness Study found 6-9 year olds to have thicker skinfolds than their counterparts in the 1960s (Ross & Pate, 1987). During the same period, others documented a 54 percent increase in the prevalence of obesity among 6-11 year olds (Gortmaker, Dietz, Sobol, & Wehler, 1987).

Defining Obesity in Children and Adolescents

Obesity is defined as an excessive accumulation of body fat. Obesity is present when total body weight is more than 25 percent fat in boys and more than 32 percent fat in girls (Lohman, 1987). Although childhood obesity is often defined as a weight-for-height in excess of 120 percent of the ideal, skinfold measures are more accurate determinants of fatness (Dietz, 1983; Lohman, 1987).

A trained technician may obtain skinfold measures relatively easily in either a school or clinical setting. The triceps alone, triceps and subscapular, triceps and calf, and calf alone have been used with children and adolescents. When the triceps and calf are used, a sum of skinfolds of 10-25mm is considered optimal for boys, and 16-30mm is optimal for girls (Lohman, 1987).

The Problem of Obesity

Not all obese infants become obese children, and not all obese children become obese adults. However, the prevalence of obesity increases with age among both males and females (Lohman, 1987), and there is a greater likelihood that obesity beginning even in early childhood will persist through the life span (Epstein, Wing, Koeske, & Valoski, 1987).

Obesity presents numerous problems for the child. In addition to increasing the risk of obesity in adulthood, childhood obesity is the leading cause of pediatric hypertension, is associated with Type II diabetes mellitus, increases the risk of coronary heart disease, increases stress on the weight-bearing joints, lowers self-esteem, and affects relationships with peers. Some authorities feel that social and psychological problems are the most significant consequences of obesity in children.

Causes of Childhood Obesity

As with adult-onset obesity, childhood obesity has multiple causes centering around an imbalance between energy in (calories obtained from food) and energy out (calories expended in the basal metabolic rate and physical activity). Childhood obesity most likely results from an interaction of nutritional, psychological, familial, and physiological factors.

- *The Family*

The risk of becoming obese is greatest among children who have two obese parents (Dietz, 1983). This may be due to powerful genetic factors or to parental modeling of both eating and exercise behaviors, indirectly affecting the child's energy balance. One half of parents of elementary school children never exercise vigorously (Ross & Pate, 1987).

- *Low-Energy Expenditure*

The average American child spends several hours each day watching television; time which in previous years might have been devoted to physical pursuits. Obesity is greater among children and adolescents who frequently watch television (Dietz & Gortmaker, 1985), not only because little energy is expended while viewing, but also because of concurrent consumption of high-calorie snacks. Only about one-third of elementary children have daily physical education, and fewer than one-fifth have extracurricular physical activity programs at their schools (Ross & Pate, 1987).

- *Heredity*

Since not all children who eat non-nutritious foods, watch several hours of television daily, and are relatively inactive develop obesity, the search continues for alternative causes. Heredity has recently been shown to influence fatness, regional fat distribution, and response to overfeeding (Bouchard et al., 1990). In addition, infants born to overweight mothers have been found to be less active and to gain more weight by age three months when compared with infants of normal weight mothers, suggesting a possible inborn drive to conserve energy (Roberts, Savage, Coward, Chew, & Lucas, 1988).

Treatment of Childhood Obesity

Obesity treatment programs for children and adolescents rarely have weight loss as a goal. Rather, the aim is to slow or halt weight gain so the child will grow into his or her body weight over a period of months to years. Dietz (1983) estimates

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that for every 20 percent excess of ideal body weight, the child will need one and one-half years of weight maintenance to attain ideal body weight.

Early and appropriate intervention is particularly valuable. There is considerable evidence that childhood eating and exercise habits are more easily modified than adult habits (Wolf, Cohen, Rosenfeld, 1985). Three forms of intervention include:

- *Physical Activity*

Adopting a formal exercise program, or simply becoming more active, is valuable to burn fat, increase energy expenditure, and maintain lost weight. Most studies of children have not shown exercise to be a successful strategy for weight loss unless coupled with another intervention, such as nutrition education or behavior modification (Wolf et al., 1985). However, exercise has additional health benefits. Even when children's body weight and fatness did not change following 50 minutes of aerobic exercise three times per week, blood lipid profiles and blood pressure did improve (Becque, Katch, Rocchini, Marks, & Moorehead, 1988).

- *Diet Management*

Fasting or extreme caloric restriction is not advisable for children. Not only is this approach psychologically stressful, but it may adversely affect growth and the child's perception of "normal" eating. Balanced diets with moderate caloric restriction, especially reduced dietary fat, have been used successfully in treating obesity (Dietz, 1983). Nutrition education may be necessary. Diet management coupled with exercise is an effective treatment for childhood obesity (Wolf et al., 1985).

- *Behavior Modification*

Many behavioral strategies used with adults have been successfully applied to children and adolescents: self-monitoring and recording food intake and physical activity, slowing the rate of eating, limiting the time and place of eating, and using rewards and incentives for desirable behaviors. Particularly effective are behaviorally based treatments that include parents (Epstein et al., 1987). Graves, Meyers, and Clark (1988) used problem-solving exercises in a parent-child behavioral program and found children in the problem-solving group, but not those in the behavioral treatment-only group, significantly reduced percent overweight and maintained reduced weight for six months. Problem-solving training involved identifying possible weight-control problems and, as a group, discussing solutions.

Prevention of Childhood Obesity

Obesity is easier to prevent than to treat, and prevention focuses in large measure on parent education. In infancy, parent education should center on promotion of breastfeeding, recognition of signals of satiety, and delayed introduction of solid foods. In early childhood, education should include proper nutrition, selection of low-fat snacks, good exercise/activity habits, and monitoring of television viewing. In cases where preventive measures cannot totally overcome the influence of hereditary factors, parent education should focus on building self-esteem and address psychological issues.

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References identified with an EJ or ED number have been abstracted and are in the ERIC data base. Journal articles (EJ) should be available at most research libraries; documents (ED) are available in ERIC microfiche collections at more than 700 locations. Documents can also be ordered through the ERIC Document Reproduction Service: (800) 443-ERIC. For more information contact the ERIC Clearinghouse on Teacher Education, One Dupont Circle, NW, Suite 610, Washington, DC 20036-2412; (202) 293-2450.

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